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**THE TAMING OF THE HAI HO
- Communist China -**

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THE TAMING OF THE HAI HO
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Following is a translation of an unsigned article in the Chinese-language periodical, Lu-hsing Chia, Peiping, 18 March 1959.

Improvements to the Hai Ho embraced two great projects - separation of salt water from fresh water and division of the flow of clean water and polluted water. A start was made on July 1st last year 1958 and they had been basically completed by the end of the year.

The Hai Ho is an important river, crossing the Tientsin municipality area. Although only 60 kilometers long there are many tributaries on the upper reaches. These tributaries originate in the Yen-shan and T'ai-hsing-shan, flowing into the five rivers, the Pei-yun, Yung-ting, Nan-yun, Tzu-ya and Ta-ch'ing, finally becoming the Hai Ho near Tientsin and flowing eastwards to Taku and into the Pohai Gulf of Chihli.

The river has brought many disasters to the people of Tientsin. A noteworthy feature of the waters of the Hai Ho is that rainfall is not uniformly distributed. More than 61% of the annual rainfall is concentrated in July and August and only 10% falls in the March/May period. History records that in 412 years, from 1527 to 1939, Tientsin suffered 39 flood disasters, an average of a flood every 10 years or so. (During the T'ang and Sung dynasties, there was approximately one flood every 30 years increasing to one every 5 years during the Ch'ing dynasty). In history the Hai Ho was also known as the Ni Ho Rebellious or contrary river, because it is a tidal river, receiving sea tides twice a day. When there are insufficient waters in the upper reaches, the sea tides flow up the river thereby causing the fresh river water and salt water to become inseparably mixed. In addition Tientsin municipality's industrial waste water and domestic drainage all directly or indirectly pour into the Hai Ho and tributaries. Statistics show that the entire city's 674 underground drains together with the drainage of the T'angku area flow at 4.44 cubic meters per second. Drainage of such magnitude means pollution of the waters of the Hai Ho. These two factors: The influence of salt water and polluted water have a direct bearing on the water used for Tientsin municipal, industrial and agricultural production and the domestic supply. Due to lack of rain, the source of the Hai Ho dried up in the Spring of 1952 and salt water enroached up as far as the Yang-liu region. Some Tientsin factories stopped work and, although others continued in operation, the quality of the products was seriously affected. The grain in the fields was killed by the salt water. The water in the Hai Ho fell again after the commencement of winter 1957 and by December 19th the level fell so low that a situation developed whereby the Tientsin municipal water supply station,

power stations and factories directly concerned with use of water could not use their pumps. After the Spring of 1958 had started the source again diminished and by April 2nd the flow of water was 4.2 cubic meters per second, approximately the same as the municipal drainage, once again causing set backs. Apart from this the salt content was so great that over 400,000 mou of rice fields could not be transplanted.

Throughout its long history this situation has prevailed on the Hai Ho. Prior to liberation, the reactionary government did nothing to improve the river. The great flood of 1939 submerged large areas of Tientsin, over 600,000 people being affected. After liberation, the Hai Ho flooded in 1949, 1954 and 1956. The 1954 flood is of special interest because it was even greater and of comparatively longer duration than that of 1939. However due to Party and Government flood prevention measures and the system of Water Conservancy projects which had been constructed, those three flood years all passed without incidents.

The source of the Hai Ho is not an abundant one, and after the Great Leap Forward, when water conservancy and irrigation projects had been constructed on the upper reaches and surrounding rivers, there was even less water flowing in the Hai Ho. The problem of water in Tientsin had to be solved, industrial and agricultural production and the speedy development of water transport enterprises had to be guaranteed. Improvement of the Hai Ho therefore, had to be carried out.

The project to separate fresh water and salt water includes the dam /Lan-ho-pa/, the controlling lock /Chieh-chih-cha/, the fishing boat lock /Yu-ch'uan-cha/ and the canal. The dam is situated right at the mouth of the Hai Ho and its main function is to prevent sea tides from entering the river and to prevent fresh water losses, thereby changing the Hai Ho into a river reservoir /sic/. The dam is 350 metres long, 13 metres high, 260 metres wide at the base and 15 metres wide at the top, and is made up of a main and subsidiary embankment.

The controlling lock is alongside the dam. Its function is flood prevention and water position regulation /sic. T'iao-chien Shui-wei/. It is 183 metres long and 64 metres wide. It has nine buttresses and eight ports and is fitted with 16 flat steel lock gates. The top is a road bridge and the two extremities are four storey structures, in traditional Chinese style. There are 16 electric motors inside to raise and close the gates.

Fishing boats may enter and leave the Hai Ho by means of the canal which has been dug between the fishing industry towns of T'angku and East Taku. A fishing boat lock has been constructed on this canal.

The project to divide the flow of clean /river/ and polluted /drainage/ water entailed rerouting the whole of Tientsin municipality's original underground water system and allowing it to flow into outlying irrigation areas and not pollute the Hai Ho.

The scale of these projects is unprecedented in the history of construction in Tientsin. A total of 80 million yuan has been invested, equivalent to 1.3 times the Tientsin municipality construction investment in the First Five Year Plan. More than 8,500,000 cubic metres of earth works are involved and the quantities of steel, cement and other materials

too are startling. Transportation tasks were immense, 200 railway cars were required daily to transport stores for the construction of the lock. Underground tubes for the rerouting of waste water totalled 202 kilometres, almost equivalent to the total laid during 80-90 preliberation years in Tientsin. Of this figure big horseshoe tubes /tunnels/ totalled 32 kilometres, fifteen times the total of this type of tunnel laid in the First Five Year Plan period.

Original plans showed that the entire projects would take three years to complete, but in the spirit of the All China Great Leap Forward, the people of Tientsin again and again reduced this time to one sixth of the originally planned period, or six months.

In all, over 710,000 people have taken part in the projects. In 1958, Tientsin labor forces, construction materials and transport potential were stretched to the utmost. In order to speedily terminate the tasks, the Tientsin Municipality People's Council, organized volunteer labor forces and statistics show that these workers took on 75 percent of 12,300,000 man days. A certain unit, returning from the work on the Shih-shan-ling /Ming Tombs/ reservoir undertook the task of building the dam and although work was difficult in the strong tidal flow of approximately 3,000 metres per second, at a speed of 7.7 metres per second, the task was successfully completed in 44 days.

Apart from volunteer labor, the people of Tientsin made huge contributions in other respects, including materials, transport, demolition and removals. Over 300 houses on Shin-tzul-lin roads to the north of the river which had to be torn down were demolished in four days. Citizens took families who came from demolished houses into their own homes.

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